

U.S. Patent Application Serial No. 09/865,514

REMARKS

Claims 1-4 are pending in this application, of which claims 1 and 4 have been amended. No new claims have been added.

The Examiner has required a new, more descriptive title.

Accordingly, the title has been corrected to read: "Air-Cooled Outer Rotor Type Motor/Generator Contained Within a Crank Pulley of an Engine".

Claim 4 stands rejected under 35 USC §112, second paragraph, as indefinite.

Accordingly, claim 4 has been amended to correct the noted instance of indefiniteness.

There is no requirement that the number of projections or channels be the same as that of the number of coils. Projections 36b are shown in the second embodiment of Fig. 5 whereas channels 36c are shown in the third embodiment of Figs. 6 and 7. The projections 36b may be of the same number as the coils but can be different therefrom. The number of channels 36c do not have to be the same as the number of coils.

Thus, the 35 USC §112, second paragraph, rejection should be withdrawn.

Claim 1 stands rejected under 35 USC §103(a) as unpatentable over Japanese Patent Application JP404222436A to Kusase et al (hereafter "**Kusase et al.**") in view of Japanese Patent Application JP404038149A to Yoda et al (hereafter "**Yoda et al.**"), Japanese Patent Application JP359230448A to Ito (hereafter "**Ito**") and U.S. Patent Application 4,651,066 A to Gritter et al. (hereafter "**Gritter et al.**").

Applicant respectfully traverses this rejection.

Kusase et al. discloses a vibration damping generator motor for a vehicle having a rotor and

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stator fitted within a crank pulley.

The Examiner has admitted that:

However, Kusase et al. does not illustrate a crank pulley with fan blades positioned on to the side walls at are extending radially outward from an end of the crank shaft and stator coils cooled from air flowing through the annular space by way of the air passage with the air being discharged through the fan blades. (sic)

The Examiner has cited Yoda et al. for teaching a generator with fan blades 15 positioned onto a body 14 of fan 13 located on crank pulley 5.

Ito has been cited for disclosing a generator in which air flows through a stator core 8 with coils 11 and is discharged through the fan blades 13 to the outside of the generator.

Gritter et al. discloses a ferrite permanent magnet electrical machine and the application thereof within vehicle traction drives.

Gritter et al. appears to be erroneously applied in the rejection because Gritter et al. was not specifically discussed or even mentioned by the Examiner in the explanation of the rejection.

Applicant respectfully disagrees with the Examiner's assertion that Yoda et al. teaches the arrangement of the cooling fan blades recited in claim 1 of the instant application.

As recited in the amendments to claim 1, in an outer rotor type motor/generator according to the present invention, air is introduced into an annular space defined between an engine side wall and a crankpulley fixed to one end of a crankshaft, via an air inlet passage formed between the engine side wall and an edge of the peripheral wall of the crankpulley, to cool coils of the stator, and the air is discharged to the outside from cooling fan blades provided on the side wall facing away

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from the engine side wall by means of the cooling fan blades. It should be noted that cooling fan blades are used for guiding air, having passed the motor/generator to the outside and serving as an outlet for such air flow.

The specification discloses that one object of the present invention is to prevent any foreign matter from being ingested and to cool the motor/generator when it is housed inside the crank pulley of an engine. As typically shown by arrows in Fig. 3 of the instant application, air is introduced from the air inlet passage 46 that can be formed to have a limited or reduced inlet area so as to prevent entry of undesirable foreign matters. Cooling fan blades 32a are used as an outlet for such air flow.

In contrast, Fig. 1 of Kusase et al. shows the flow of air entering from a lower opening (15a) and exiting from an upper opening between engine housing 1 and rim 14. Fig. 3 of Yoda et al. similarly shows the air flow entering from left-side fans 13 and exiting from right-side outlet 11b. These air flows are converse to that obtained by the arrangement recited in claim 1, as amended of the present invention. The idea of preventing entry of undesirable foreign matter by designing the air inlet passage (and its associated structure as recited in the dependent claims) to have the specific structure of the present invention, is not taught, mentioned or suggested in any of the cited references.

More specifically, in Yoda et al. the cup-shaped fan blades direct air from the outside of the crank pulley toward the engine side wall. This is in contrast to the present invention, in which the air is introduced into the annular space via the air inlet passage and the air is discharged to the outside through the side wall of the crank pulley which faces away from the engine side wall. In other words, cooling air is "pushed" through the generator toward the engine wall by the cup-shaped

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fan blades in Yoda et al., while in the present invention the cooling air is "pulled" from the engine side wall through the generator.

Thus, Yoda et al. teaches away from the present invention, and is therefore not combinable with the other references to teach the present invention.

Accordingly, claim 1 has been amended to clarify these distinctions, and the 35 USC §103(a) rejection should be withdrawn.

Claims 1 and 2 stand rejected under 35 USC §103(a) as unpatentable over Kusase et al. in view of Yoda et al., Ito, Gritter et al. and further in view of U.S. Patent 6,091,172 to Kakinuma et al. (hereafter "Kakinuma et al.").

Applicant respectfully traverses this rejection.

Kakinuma et al. discloses an outer rotor-type multi-pole generator including a plurality of coils wound around a large number of protruding poles provided around an outer periphery of a stator core through a bobbin, and terminal members fitted into fitting tube portions integrally provided on the bobbin to pass through the stator core over opposite ends of the stator core.

The Examiner has admitted that Kakinuma et al. fails to show cores with coils wound around the cores and an air passage between each coil, but has cited Gritter et al. for teaching this feature.

None of the cited references teaches, mentions or suggests the limitations contained in the amendments to claim 1, from which claim 2 depends.

Thus, the 35 USC §103(a) rejection should be withdrawn.

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Claims 1-4 stand rejected under 35 USC §103(a) as unpatentable over Kusase et al., Yoda et al., Ito, Gritter et al., Kakinuma et al. and further in view of Japanese Patent Application JP360118036A to Kamiyawa (hereafter "Kamiyama et al.").

Applicant respectfully traverses this rejection.

The Examiner has admitted that the references discussed above do not teach a shield covering on the stator facing the air inlet passage and projections from the circumferential direction of the outer periphery of the stator, but has cited Kamiyama et al. for teaching a guide fin 133 performing such a function.

Kamiyama et al., like the other cited references, fails to teach, mention or suggest the limitations recited in the amendments to claim 1, from which claims 2-4 depend.

Thus, the 35 USC §103(a) rejection should be withdrawn.

In view of the aforementioned amendments and accompanying remarks, claims 1-4, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

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In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully Submitted,

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Enclosures: Version with markings to show changes made

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